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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,395	02/06/2004	Kenneth A. McQueeney	66396-078	5026

7590 06/17/2005

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EXAMINER	
NATALINI, JEFF WILLIAM	

ART UNIT	PAPER NUMBER
2858	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,395	MCQUEENEY ET AL.	
	Examiner	Art Unit	
	Jeff Natalini	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-21* is/are pending in the application.

4a) Of the above claim(s) *10-16 and 21* is/are withdrawn from consideration.

5)☒ Claim(s) *18-20* is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/20/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-9 and 20 in the reply filed on June 3, 2005 is acknowledged. Because of an amendment filed June 3, 2005 claims 18 and 19 will also be examined as they now depend from claim 20.

Drawings

2. The drawings are objected to because some drawings contains written numbers/letters that make them look messy and possibly unreadable. Applicant is advised for all letters/numbers to be typed into the drawings so they are easily readable, for example 1B and 1C the prior art label, as well as the word "extension" in 1C. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 7 is objected to because it is a duplicate of claim 6 and does not provide any further limitations to the capacitive sensor as claimed. It seems as though this claim was accidentally duplicated and should be deleted, so that claim 8 will depend from claim 6.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosch (DE 3705692) in view of Behnke (US 4013334).

In regard to claims 1 and 2, Bosch discloses a capacitive sensor for coil-on plug ignition testing apparatus (abstract) comprising:

a first portion of the capacitive sensor (fig 3 (21)) having at least one first engagement member projecting downwardly therefrom (is a zipper or Velcro to

engage to housing (10); paragraph col 3 line 16-30) and a second portion (fig 3 (14)) of the capacitive sensor connected to the first region (through cable (20)) and configured to slide relative to the first region (spring (23) provides movement so 14 and 21 can slide toward or away from each other), the second portion having at least one second engagement member projecting outwardly therefrom (14 is engaged to testing system (15) in fig 1), at least one of the first portion and the second portion comprising a capacitive element (first portion forms capacitive element as seen at the connection to the housing (10) at (17) in figure 1);

a biasing element disposed between the first portion and the second portion to bias the first portion toward the second portion and to maintain the first portion and second portion in a contracted state (fig 3- spring (23)); and

an electrical connector electrically connecting the first or second portion forming the capacitive element to an output terminal (fig 1 (15) testing system is connected to the capacitive element (as seen at connection 17) through cable 20),

wherein the first portion may be translated relative to the second portion against a bias of the biasing element to an expanded state for securement to a coil-on plug housing (connection to housing (10) is seen in fig 1, the spring (23) in fig 3 is able to stretch if necessary for connection to housing).

Bosch lacks wherein the first portion has a substantially planar base that defines a groove; and the second portion has a protruding member disposed to slide within the groove to maintain the second portion in sliding contact with the first portion.

Behnke teaches a diagnostic device (abstract) for an ignition coil (col 2 line 43-51) wherein first portion (fig 1 (7)) has a substantially planar base that defines a groove (the hole in the base 7); and the second portion (8) has a protruding member (5) disposed to slide within the groove (the hole in 7) to maintain the second portion in sliding contact with the first portion (seen in fig 1).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Bosch to incorporate wherein the first portion has a planar base defining a groove, so that the second portion has a protruding member to slide within the groove to maintain sliding contact in order to be able to connect the sensor to different sizes of ignition coils (col 1 line 35-45).

In regard to claim 3, Bosch discloses wherein the biasing member (fig 3 – spring (23)) is disposed between an upstanding first finger of the first portion (21 has Velcro that acts as a first finger for connection; paragraph col 3 line 16-30) and an upstanding second finger of the second portion (14 provides the connection to the testing device (fig 1 (15))).

In regard to claim 3, Bosch discloses wherein the biasing member is a spring (fig 3 – 23).

6. Claims 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bosch (DE 3705692) in view of Behnke (US 4013334) as applied to claim 4 above, and further in view of Maruyama et al. (5419300).

In regard to claim 5-8, Bosch as modified by Behnke lacks wherein the a guide rod is disposed along a longitudinal axis of the spring with the spring coil, wherein the guide rod is rigidly connected to one side and slidingly connected to the other, wherein the rigid connection forms a terminal for the electrical connector.

Maruyama et al. teaches in a ignition coil unit that has a voltage sensing capacitor, that a guide rod (fig 2, there is a rod where the spring-22 rests on) is disposed along a longitudinal axis of the spring (22; col 6 line 52) with the spring coil (the spring coil rests on the rod), wherein the guide rod is rigidly connected to one side (bottom side is shown to have a "|_|" connection grasping it) and slidingly connected to the other (top side has no grasp connection so it would slide off of that side (since one side is grasped the other side would have to be slidingly attached or there would be no purpose for the spring), wherein the rigid connection forms a terminal for the electrical connector (the bottom side is connected to (23) which is a material made for high voltage conduction; (col 6 line 47-50).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for Bosch and Behnke to incorporate where the spring has a guide rod that is rigidly attached to one side and slidingly attached to the other side where the rigidly attached side forms the connection as disclosed by Maruyama et al. in order to provide stability to the spring, so a user would not have to reset the spring when it bends the wrong way.

In regard to claim 9, Bosch discloses wherein a non-conductive material is applied to an exterior surface of at least a portion of either the first portion or the second

portion (fig 3- 21, contains Velcro which is known to have plastic non-conducting hook and fasteners).

Allowable Subject Matter

7. Claims 18-20 are allowed.

In regard to claim 20, the prior art does not disclose a control circuit comprising a first circuit region with a plurality of electrical connectors connected to a plurality of capacitive sensors, a second circuit region with electrical connectors connected to a second plurality of capacitive sensors, with a capacitive divider in one of the circuit regions, and having a potentiometer provided in series with the first circuit region and the second circuit region for attenuation of signal input thereto in combination with the claimed capacitive sensor for ignition testing.

Claims 18 and 19 are also allowable because of their dependence of allowable claim 20.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Philyaw et al. (5577921) discloses a elongate body to be installed on a ignition transformer assembly that contains four detachable legs and feet for attachment. Bayba (4825167) discloses in an ignition coil tester a control circuit for multiple capacitive sensors, though it lacks any capacitive divider or potentiometer.

Miyata et al. (5503132) discloses in an ignition coil tester a control circuit that contains a capacitive divider.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeff Natalini

ANJAN DEB
PRIMARY EXAMINER